

Figure 1. Phylogenetic relationship of the three bacterial strains and one substrain inferred from comparative analysis of 16S rDNA sequences. The tree is based on neighbour-joining distance analysis of sequences containing a minimum of 1430 nucleotides.

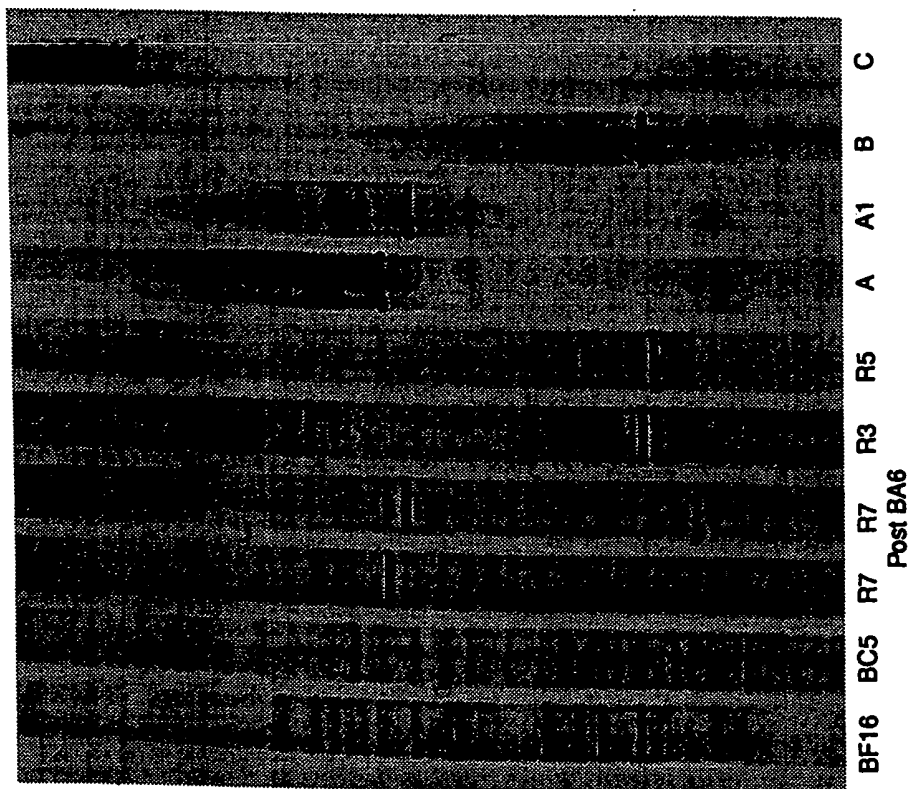


FIG. 2. Denaturing gradient gel electrophoresis (DGGE) of biomasses from selected cultures and ammonia-oxidizing bacteria described herein.

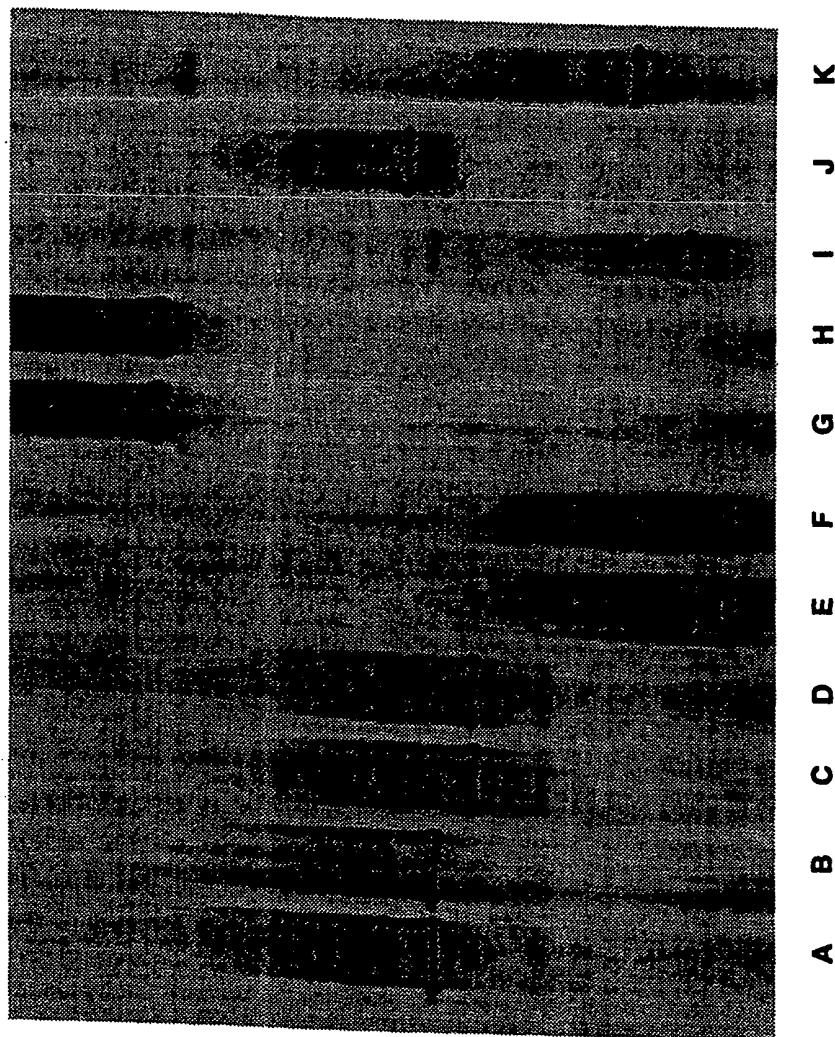


Fig. 3. Denaturing gradient gel electrophoresis (DGGE) demonstrating the uniqueness of the bacterial strains reported herein. There are two replicates of each bacteria type: Type A (lanes A and B), Type A1 (lanes C and D), Type B (lanes E and F) and Type C (lanes G and H). Also shown are results for pure cultures of *Nitrospira multiformis* (lane I), *Nitrosomonas cryotolerans* (lane J), and *Nitrosomonas europaea* (lane K).

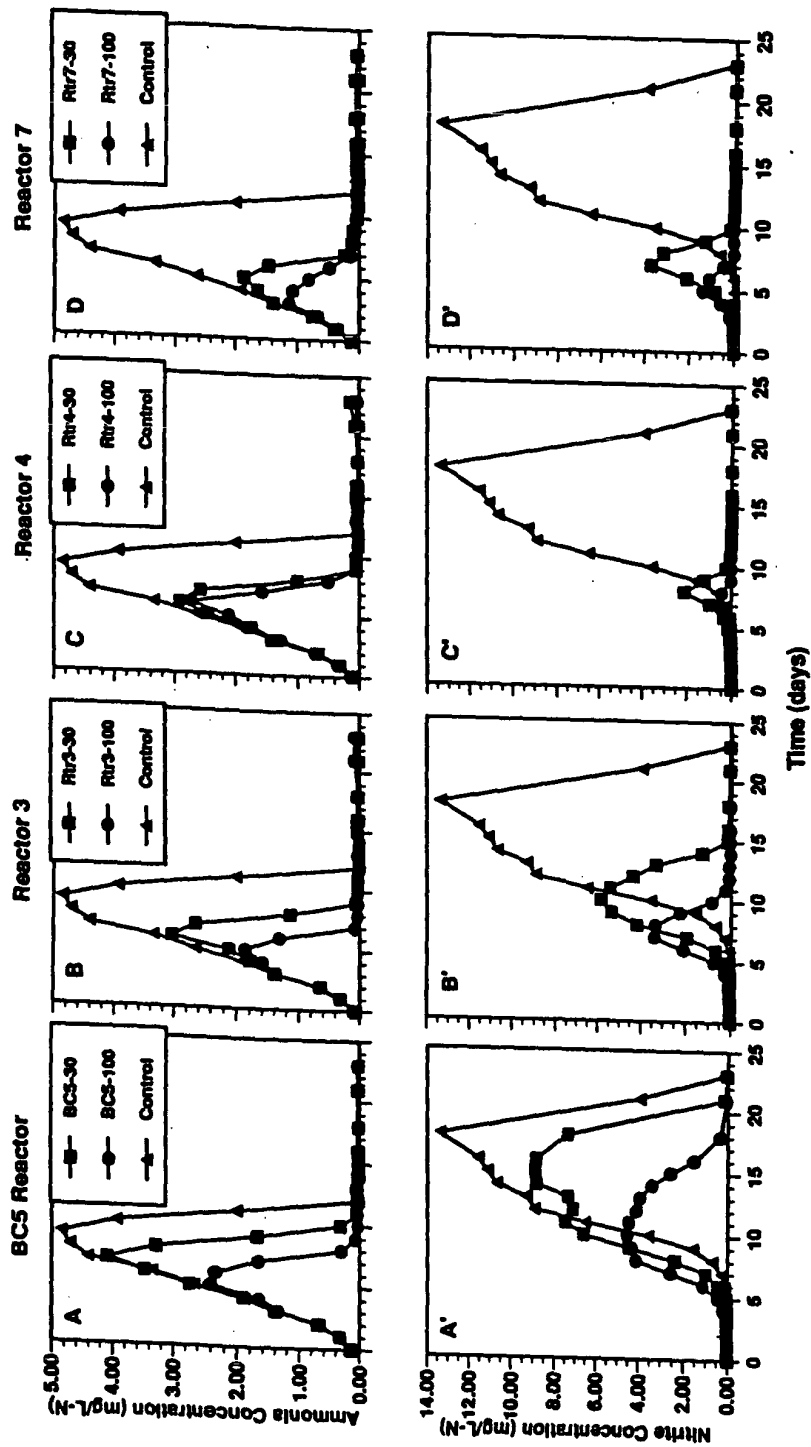


Figure 4. Mean ammonia and nitrite trends for the Bacterial Additives VI test (N-3). For each bacterial mixture data are presented for aquaria dosed with 30 ml (■) and 100 ml (●) of mix along with the control aquaria (▲) which did not receive a mixture. BCS ammonia (A) and nitrite (A'); Rtr3 ammonia (B) and nitrite (B'); Rtr4 ammonia (C) and nitrite (C'); and Rtr7 ammonia (D) and nitrite (D').

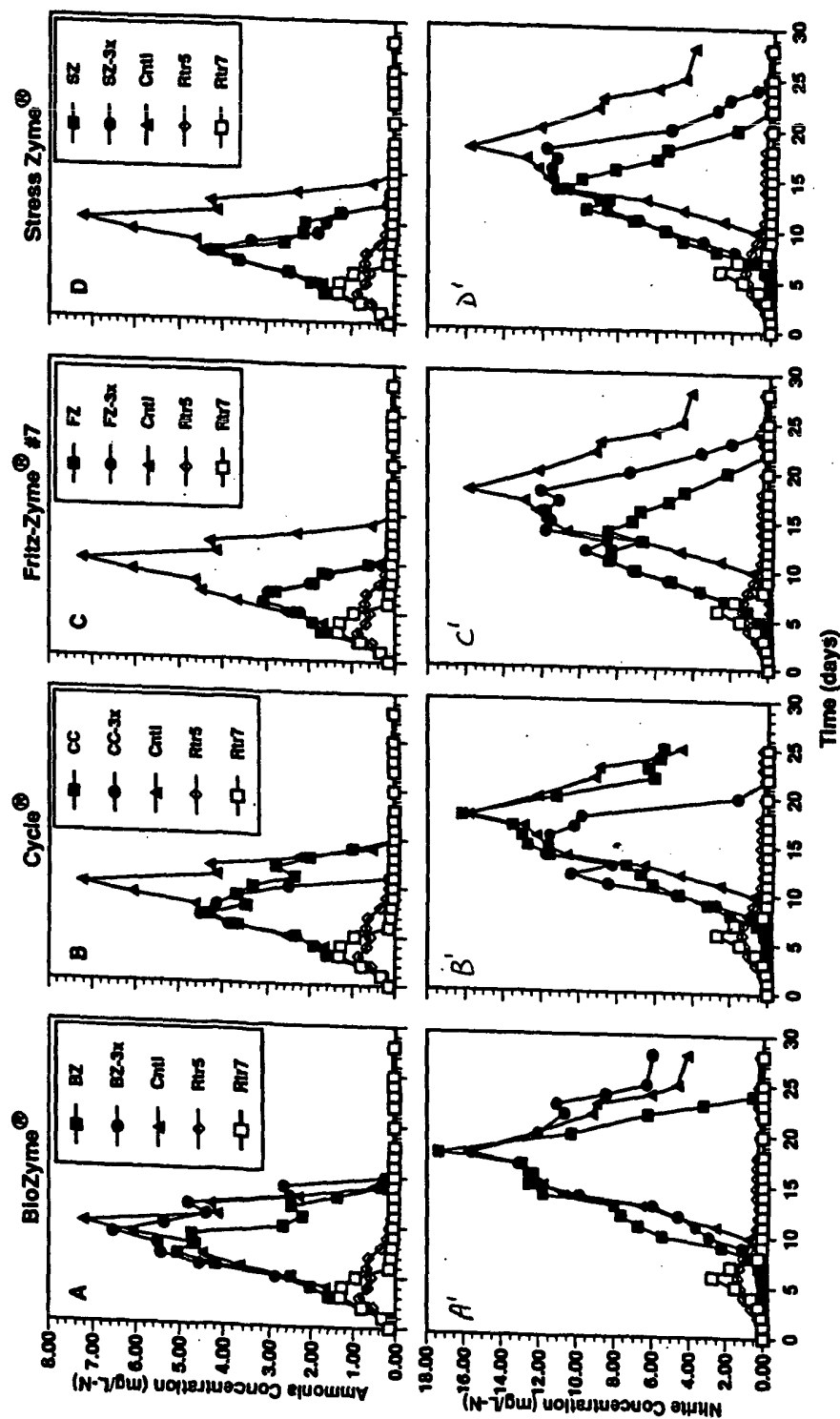


Figure 5. Mean ammonia and nitrite trends for the Bacterial Additives VII test (N-3). Four commercially available bacterial mixtures: BioZyme® (A, A' [BZ, Aquarium Products]), Cycle® (B, B' [CC, Rolf C. Hagen Corp.]), Fritz-Zyme® #7 (C, C' [FZ, FRITZ Pet Products]) and Stress Zyme® (D, D' [SZ, Aquarium Pharmaceuticals]) were compared to two bacterial mixtures (Rtr5, ◊ and Rtr7, □) containing the bacterial strains incorporated herein. Each commercially available mixture was used per the manufacturer's directions (■) and at 3x the prescribed dosage (●) and also compared to control aquaria (▲) which did not receive a bacterial mixture.

Figure 6

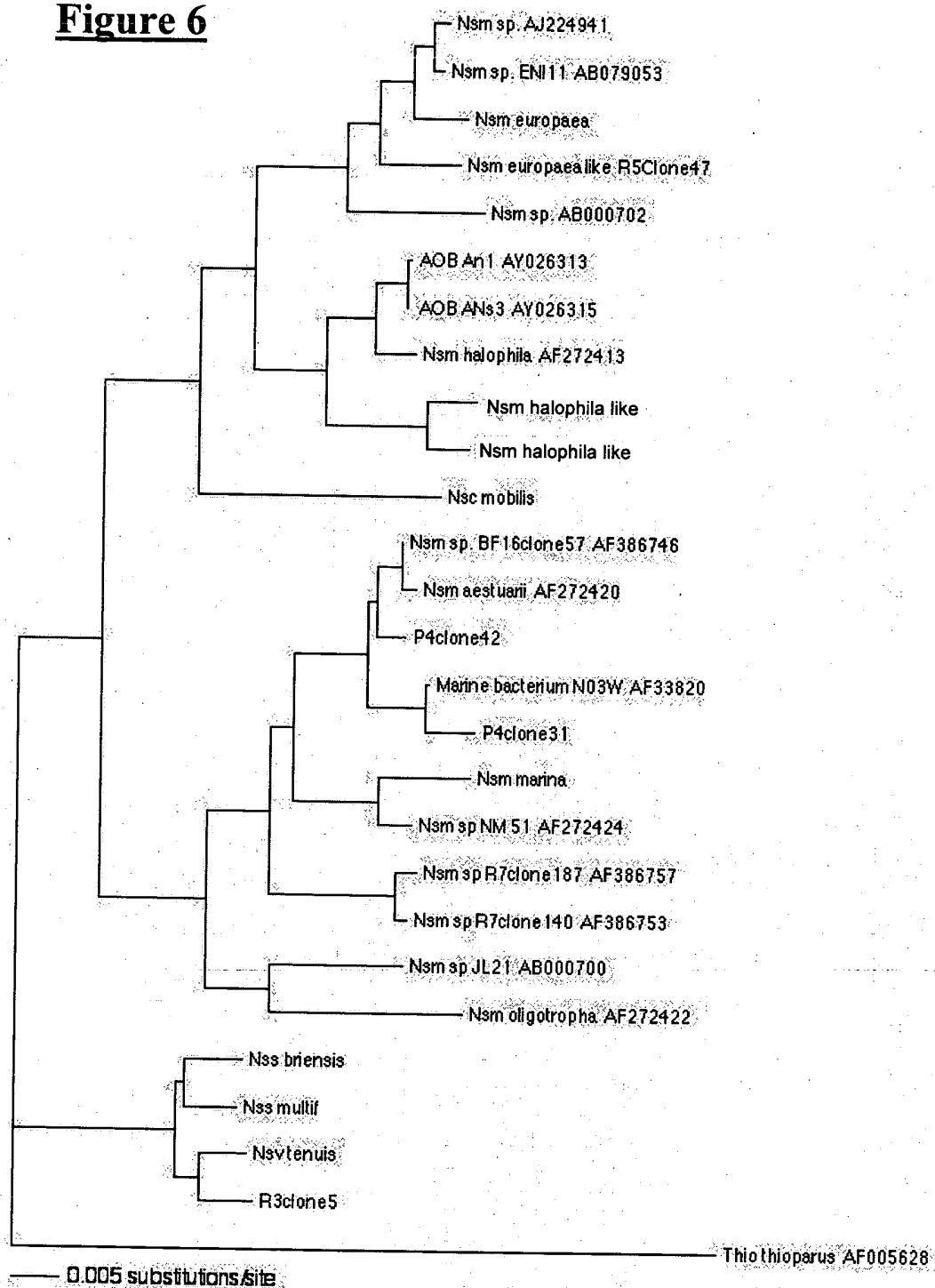


Figure 7

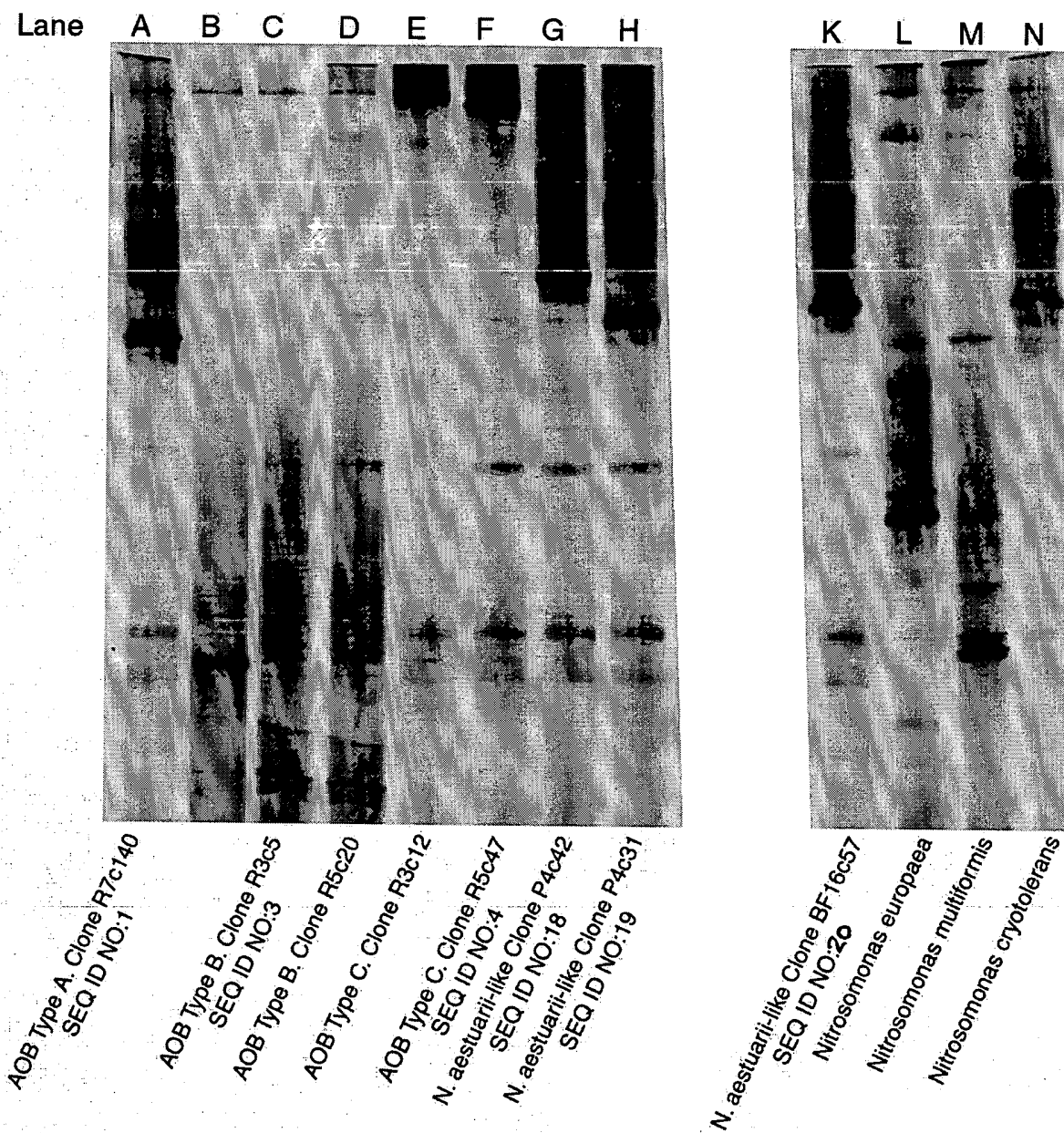
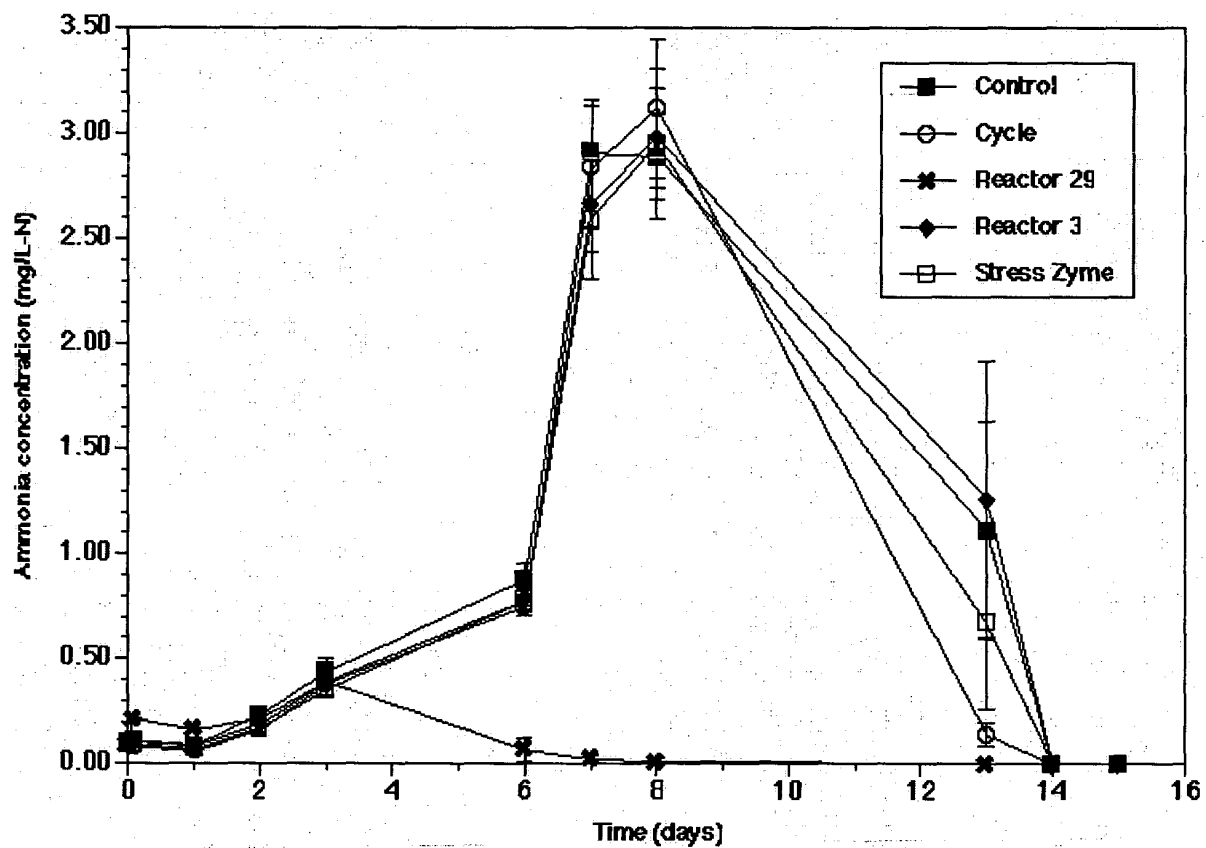
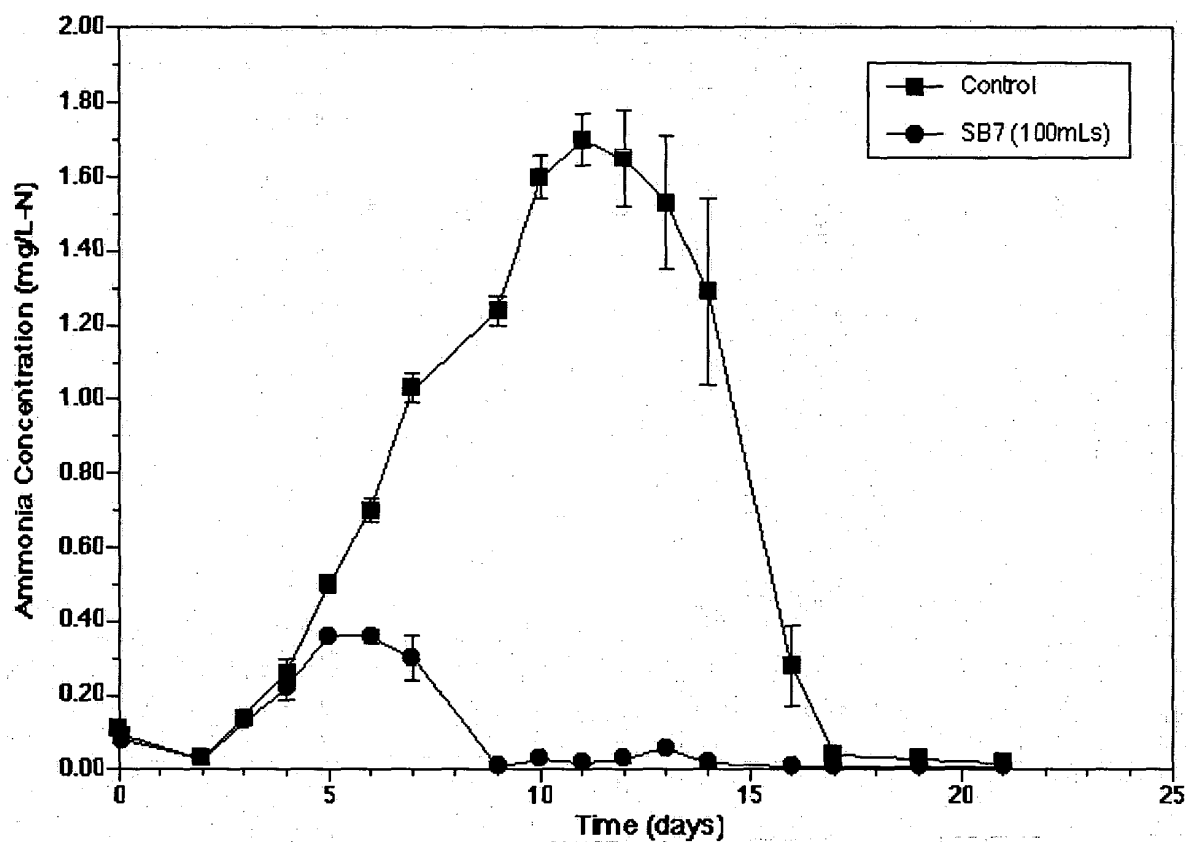


Figure 8



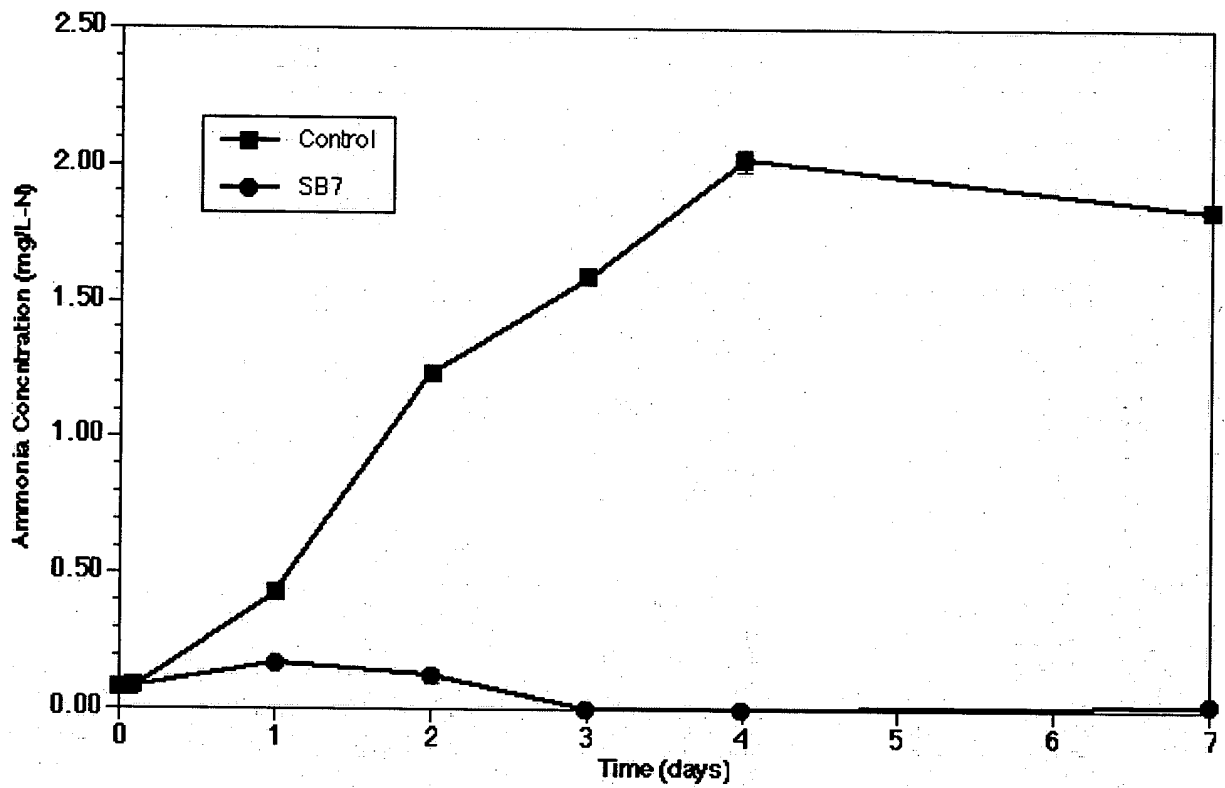
Mean ammonia trends (N=3) for aquaria dosed with AOB bacteria in accordance with an embodiment of the present invention or commercially available nitrifying bacteria mixtures.

Figure 9



Mean ammonia trends (N=4) for saltwater aquaria dosed with saltwater AOB bacteria in accordance with an embodiment of the present invention and control aquaria that were not dosed.

Figure 10



Mean ammonia trends (N=4) for aquaria dosed with saltwater bacteria in accordance with an embodiment of the present invention and control aquaria that were not dosed.